tion. The present invention contemplates that the telephone transceiver portion may be locked into place on the PDA portion or otherwise secured in any number of ways. The present invention also contemplates that when in a locked position, the telephone transceiver portion may be in direct electrical connection with the PDA portion to provide for the charging of batteries in the telephone transceiver portion, the exchange of information between telephone transceiver portion and the PDA portion, or for other uses.

FIGS. **18** and **19** show another variation of the-present invention that allow a user simultaneous access to both the PDA portion and the telephone transceiver portion. In FIG. **18**, a hinge **108** is used. The hinge **108** is a standard hinge such as may be used in a flip phone or other device. The buttons **22** are accessible from either side of the device. This can be accomplished in multiple ways. For example, two sets of buttons can be used where the buttons share an electrical contact. Alternatively, two sets of buttons can be used, each set of buttons having its own set of contacts. In this variation, the display **4** may be a transparent display. This permits the display to be viewed from either side. It is to be understood that the function of the buttons as well as the display on the screen may need to be reversed or mirrored depending upon the context of the use of the device. For example, when the hinge is in an open position than the display will provide a mirror image of the display image when the personal electronic device **2** is in a closed position. The present invention also contemplates that instead of having a single transparent display, there may be two displays, one on each side of the telephone transceiver portion and both separate and distinct from the PDA display. In addition the present invention contemplates that instead of a display, a see through material such as a plastic material may be used. When in a closed position, a user can see display information through the clear plastic that is displayed on the PDA display **38**. When in an open position, the user can also still see PDA display **38**. In this manner, the user has access to buttons, both the telephone transceiver portion and the PDA portion at the same time. In addition, the user can always see at least a portion of the PDA display **38** regardless of whether the personal electronic device **2** is in an open position or a closed position if a transparent display is used. Either manual operation or electronic actuation, including motorized functions allow for the opening and closing of the device.

FIG. **20** discloses an example of the earpiece **10** of the present invention. The earpiece **10** is designed to be worn at the ear. As shown in FIG. **21**, an external canal portion **58** of the earpiece **10** is positioned in the external auditory canal. The external auditory canal portion of the earpiece includes a bone conduction sensor **60** and an air conduction sensor **62** located on a resilient member **78**.

The present invention contemplates that the earpiece need not include a speech processor or other processor within the circuit portion **58** of the device. The earpiece need only include a speaker, a bone or air sensor microphone, and transceiver. Use of the earpiece with a bone conduction sensor **60** and an air conduction sensor **62** improves the quality of the sound. Where processing capabilities are not included within the earpiece **10**, both a bone conduction sensor and an air conduction sensor can still be used. For example, the transceiver used may be a stereo transceiver. This permits two channels of audio signals to be simultaneously transmitted. The PDA portion of the device may then perform speech processing as required, instead of or in addition to speech processing occurring within the earpiece. By permitting the PDA rather than a portion of the earpiece to perform this processing, the size of the earpiece may be further reduced.

A general description of the present invention as well as a preferred embodiment has been set forth above. Those skilled in the art will recognize and will be able to practice additional variations and the methods and devices described which fall within the teachings of this invention. Accordingly, all such modifications and additions are deemed to be within the scope of the invention which is to-be limited only by the claims appended hereto.

What is claimed is:

1. A cellular telephone comprising:

a telephone housing including a first body and a second body configured so that said first body slides longitudinally and upwardly between a closed position and an open position relative to said second body, and wherein said housing contains:

1) a cellular telephone module with audio input and output including a cellular telephone transceiver;

2) a first radio antenna in said housing electrically coupled to said telephone transceiver;

3) a first short range bidirectional, radio frequency transceiver coupled to said audio input and output of said cellular telephone module;

4) a second radio antenna in said housing electrically coupled to said first short range bidirectional transceiver;

5) a ringer coupled to said cellular telephone and adapted to optionally ring upon occurrence of an incoming call;

6) a vibration module coupled to said cellular telephone module and adapted to optionally vibrate on occurrence of an incoming call;

7) a personal digital assistant module containing a first processor;

8) a first display electrically coupled to said cellular telephone module;

9) a second display electrically coupled to said personal digital assistant module;

10) a first set of input keys electrically coupled to said cellular telephone module;

11) a second set of input keys electrically coupled to said personal digital assistant;

wherein one of said first or second displays is viewable in both said closed and open positions, and wherein at least some of said first and second sets of keys are accessible in both said closed and open positions;

an earpiece adapted to be worn in a person's ear, said earpiece having an external ear canal portion which is fitted within the ear and an ear attachment portion fitted around the ear, said earpiece containing a second processor, said second processor adapted to provide speech enhancement, said earpiece containing a second short-range radio transceiver;

a third radio antenna in said earpiece electrically coupled to said second short range bidirectional transceiver;

wherein said first short range bidirectional radio frequency transceiver couples cellular telephone call information from said cellular telephone to said second short range bidirectional radio frequency transceiver in said earpiece.

2. The cellular telephone of claim **1** wherein at least one of said first or second displays is a touch screen.

3. The cellular telephone of claim **1** wherein said first processor contains written character recognition software.

4. The cellular telephone of claim **1** wherein said first processor contains voice recognition software.

5. The cellular telephone of claim **1** wherein said first and second short range bidirectional radio transceivers are BLUETOOTH.